

REMARKS / DISCUSSION OF ISSUES

Claims 1-20 are pending in the application; claims 18-20 are newly added.

The applicants thank the Examiner for acknowledging the claim for priority and receipt of certified copies of all the priority documents, and for determining that the drawings are acceptable.

New dependent claims are added to at least partially restore the original range of claims that existed before multiple dependencies were removed in the preliminary amendment. No new matter is added.

The Office action rejects claims 1-17 under 35 U.S.C. 112, first paragraph. The applicants respectfully traverse this rejection.

The Office action asserts that the claims contain subject matter that was not described in the specification to convey to one of skill in the art that the inventors had possession of the claimed invention of independent claims 1, 7, 11, 15, and 17, with particular reference to a code that has the properties detailed below:

"all  $k$  input symbols and all  $m-k$  other output symbols are determinable from any  $k$  output symbols, and no  $m-l$  other output symbols are determinable from any  $l$  output symbols,  $l < k$  "

The Office action further asserts that these limitations are merely recited in the abstract and summary of the invention. The applicants respectfully disagree with these assertions.

The limitation of "all  $k$  input symbols and all  $m-k$  other output symbols are determinable from any  $k$  output symbols" is taught at page 7, lines 1-11 of the applicants' specification:

"An MDS code is a linear code, hence it may be described by a  $k \times n$  generator matrix  $G$  with entries from  $A$ . A vector of  $k$  input symbols  $\mathbf{a} = [\mathbf{a}_1, \dots, \mathbf{a}_k]$  from the alphabet  $A$  is encoded into  $n$  output symbols  $\mathbf{c} = [\mathbf{c}_1, \dots, \mathbf{c}_n]$  from the same alphabet via

$$\mathbf{c} = \mathbf{a} G \quad (5)$$

wherein the  $n$  multiplications / additions take place in  $GF(2^q)$ , i.e. the result of standard operations (multiplications & additions) is taken modulo  $2^q$ . The

definition given above includes the whole class of linear block codes. The subclass of MDS codes is characterized by such generator matrices  $G$  that ***any arbitrary subset of  $k$  symbols from the set of output symbols of  $c$  yields the set of input symbols  $a$  and therefore the remaining  $(n-k)$  output symbols.***" (emphasis added)

In like manner, the limitation of "no  $m-l$  other output symbols are determinable from any  $l$  output symbols,  $l < k$ " is taught at page 7, lines 11-13:

"An important consequence of the above definition of MDS codes is that knowledge of ***any set of less than  $k$  output symbols of  $c$  gives no information about the remaining output symbols.***"

One of skill in the art will recognize that the applicants had possession of the claimed invention at the time the application was filed, because the applicants had possession of MDS codes, and all MDS codes exhibit these properties. It also noted in the applicants' specification that "any other code having the same two essential properties as the known MDS codes may equally well be used in the present invention" (page 7, lines 17-19). The applicants also provide example MDS codes with these properties at page 8, equations (6).

In view of the foregoing, the applicants respectfully request that the Examiner withdraw the rejections of record, allow all the pending claims, and find the application to be in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

/Robert M. McDermott/  
Robert M. McDermott, Esq.  
Registration Number 41,508  
Phone: 804-493-0707  
Fax: 215-243-7525

**Please direct all correspondence to:**  
Larry Liberchuk, Esq.  
Philips Intellectual Property and Standards  
P.O. Box 3001  
Briarcliff Manor, NY 10510-8001  
Phone: (914) 333-9618  
Fax: (914) 332-0615